

REMARKS

Amendments

Applicants have amended claim 79 to further clarify their invention. In particular, the claim has been reorganized for clarity and amended to replace the term "contacting" with "reacting." No new matter has been added. Support for the claim as amended can be found in the specification generally, for example, at page 55, line 15 to page 57, line 6 and in Example 28 at page 105, line 30 to page 107, line 20. Upon entry of this amendment, claims 79 and 81 remain as pending in the application. A version with markings to show the changes made by the foregoing amendment is attached hereto under the caption "Version With Markings To Show Changes Made."

Rejection under 35 U.S.C. §112, second paragraph

Applicants respectfully request reconsideration of the rejection of Claim 79 under 35 U.S.C. §112, second paragraph. "Definiteness of claim language must be analyzed, not in a vacuum, but in light of: (A) The content of the particular application disclosure; (B) The teachings of the prior art; and (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made." MPEP 2173.02. See also Solomon v. Kimberly-Clark Corp., 55 USPQ2d 1279, 1283 (Fed. Cir. 2000). Thus, for the reasons stated below, it is respectfully submitted that one of ordinary skill in the art reading the specification and the prior art would be fully apprised of the scope of claim 79 such that the claim satisfies the requirements of 35 U.S.C. §112, second paragraph.

Claim 79 as amended defines a process for preparing an N-substituted monoethanolamine from a monoethanolamine substrate. The process comprises reacting the monoethanolamine substrate with a ketone and hydrogen in the presence of a catalyst with the proviso that the reaction be conducted essentially in the absence

of any non-reactive solvent. The process defined by instant claim 79 is novel and inventive over the prior art as described in the specification, for example, at page 56, lines 19-25, in that prior art processes for the reductive alkylation of monoethanolamine substrates require the use of solvents such as alcohols which are not reactive with either the reactants or the desired product under the reaction conditions of the reductive alkylation as a means to increase selectivity. Thus, excluding the use of a non-reactive alcohol solvent simplifies the process, increases overall payload and simplifies ketone recovery from the product mixture.

At page 4 of the Office action, the Examiner has rejected claim 79 as indefinite for including the transitional phrase "comprising" and the term "essentially." In particular, the Examiner contends that the term "essentially" inappropriately limits the metes and bounds of the comprising language by excluding an element or step from the process. However, Applicants respectfully submit that the claim as amended is sufficiently clear to overcome the instant rejection.

In using the transitional phrase "comprising," Applicants have defined the invention of claim 79 as requiring the reaction of a monoethanolamine, a ketone and hydrogen in the presence of a catalyst. The inclusive term "comprising" does not exclude anything else. The proviso of "essentially in the absence of any non-reactive solvent" qualifies the comprising language by excluding a non-reactive solvent such as an alcohol from the recited reaction step. However, the claim remains otherwise open-ended as to reactants and/or process steps. The term "essentially" is not being used as a transitional phrase and only modifies the term "non-reactive solvent." Therefore, when viewed in the context of the disclosure, the prior art and the claim itself, Applicants respectfully submit that one skilled in the art would fully understand the meaning of claim 79. Accordingly, Applicants respectfully submit that claim 79 satisfies the

requirements of 35 U.S.C. §112, second paragraph and withdrawal of the rejection is hereby requested.

The Examiner has further rejected claim 79 because the phrase "any non-reactive solvent" is indefinite. However, Applicants respectfully submit that the phrase is sufficiently defined in the disclosure and the prior art such that one skilled in the art would fully understand the meaning of the phrase as used in claim 79. In particular, Applicants have defined the term "non-reactive solvent" in the specification at page 106, line 28 to page 107, line 4, as "any solvent which is non-reactive with the reactants and the desired product under the reaction conditions." Further, the prior art for the reductive alkylation of monoethanolamine substrates has required the use of a solvent such as ethanol or another alcohol which is not reactive with the reactants or product under the conditions of the reductive alkylation reaction for selectivity. Thus, it is respectfully submitted that one skilled in the art would fully understand the meaning of the phrase "non-reactive solvent" when reading claim 79 in view of the specification and the prior art. Accordingly, it is respectfully submitted that claim 79 as amended satisfies the requirements of 35 U.S.C. §112, second paragraph. Withdrawal of the rejection and early allowance is hereby requested.

Claim 81

Claim 81, as dependent on claim 79, is submitted as patentable for the reasons stated above with respect to claim 79. Therefore, withdrawal of the rejection under 35 U.S.C. §112, second paragraph is respectfully requested.

Rejection under 35 U.S.C. §102(b)

Reconsideration is respectfully requested of the rejection of claims 79 and 81 under 35 U.S.C. §102(b). For the reasons set forth below, the processes defined in instant claims 79 and 81

are submitted as novel over the cited reference, Cope et al., J. Am. Chem. Soc., 64, 1503-6 (1942).

As described above, claim 79 defines a process for preparing an N-substituted monoethanolamine from a monoethanolamine substrate. The process comprises reacting a monoethanolamine substrate with a ketone and hydrogen in the presence of a catalyst. The process is further characterized in that the reaction step takes place essentially in the absence of a non-reactive solvent. In particular, Applicants have found that the process of the present invention can be practiced without a substantial amount of a non-reactive solvent such as ethanol, which was required by the prior art to enhance selectivity.

Claim 79 is not anticipated by Cope et al. Cope et al. describe the reductive alkylation of ethanolamine with methyl hexyl ketone in the presence of a platinum catalyst and using absolute alcohol as a solvent. Cope et al. do not teach or suggest the reductive alkylation of a monoethanolamine substrate without requiring the presence of a substantial amount of a solvent that is not itself reactive with the reactants or the product under the conditions of the alkylation reaction. Therefore, it is respectfully submitted that the process of the present invention as defined by claim 79 is not anticipated by the disclosure of Cope et al.

Further, the Examiner contends that claim 79 is anticipated by Cope et al. because the Applicants claim language of "essentially in the absence of" reads on some amount of non-reactive solvent greater than zero. The claim indeed allows for a small fraction of absolute alcohol or other non-reactive solvent, but this does not cause the claim to read on Cope. Cope et al. disclose a reductive alkylation wherein both the ethanolamine substrate and the catalyst are present in an absolute alcohol solution. For example, at page 1505 of the reference, Cope et al. describe dissolving the platinum oxide catalyst (0.5 g) in 50 cc. of absolute alcohol and dissolving the

ethanolamine substrate (61 g) in 100 cc. of absolute alcohol before adding the ketone. Therefore, nothing in the Cope et al. reference can be construed as disclosing that the reaction could be completed with only a trace amount of non-reactive solvent such that one skilled in the art would be taught that the present invention as defined in claim 79 could be practiced "essentially in the absence of any non-reactive solvent." Thus, it is respectfully submitted that claim 79 is not anticipated by the disclosure of Cope et al. Accordingly, withdrawal of the rejection under 35 U.S.C. §102(b) is hereby respectfully requested.

Claim 81 is submitted as patentable for the reasons set forth with respect to claim 79.

Rejection under 35 U.S.C. §103(a)

Reconsideration is respectfully requested of the rejection of claims 79 and 81 under 35 U.S.C. §103(a). For the reasons stated below, the process defined in instant claims 79 and 81 are submitted as patentable over the cited reference, Cope et al., J. Am. Chem. Soc., 64, 1503-6 (1942).


Claim 79 is not obvious over Cope et al. As described above with respect to the rejection under 35 U.S.C. §102(b), Cope et al. describe the reductive alkylation of ethanolamine with methyl hexyl ketone in the presence of a platinum catalyst and wherein both the catalyst and ethanolamine substrate are dissolved in absolute alcohol (i.e., a non-reactive solvent). Thus, nothing in the reference remotely teaches or suggests that the process of the present invention can be practiced with less than a substantial amount of non-reactive solvent, much less essentially in the absence of any non-reactive solvent. Therefore, it is respectfully submitted that the present invention as defined by claim 79 is patentable over the cited reference Cope et al. Withdrawal of the rejection under 35 U.S.C. §103(a) and early allowance are hereby respectfully requested.

Again, claim 81 is submitted as patentable for the reasons set forth above with respect to claim 79.

Conclusion

Enclosed is a check in the amount of \$110.00 for the purchase of a one-month extension of time under 37 C.F.R. §1.136(a). The Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No. 19-1345.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'J E Davis', is written above the typed name.

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JED/tjk

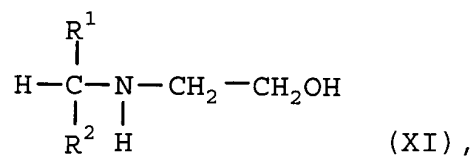
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

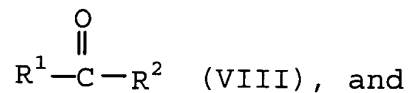
Claim 79 has been amended as follows:

79. (twice amended) A process for the preparation of an N-substituted monoethanolamine, the process comprising [**contacting**] **reacting** a ketone, monoethanolamine, and H₂ in the presence of a catalyst **and essentially in the absence of any non-reactive solvent, said catalyst** comprising a metal selected from the group consisting of platinum and palladium, [**and essentially in the absence of any non-reactive solvent,**]

wherein the N-substituted monoethanolamine has formula (XI):



the ketone has formula (VIII):



R¹ and R² are independently selected from the group consisting of hydrocarbyl and substituted hydrocarbyl.